T1-A8. Thirty Years of the Network for Detection of Atmospheric Composition Change (NDACC): Contributions to Metrology.

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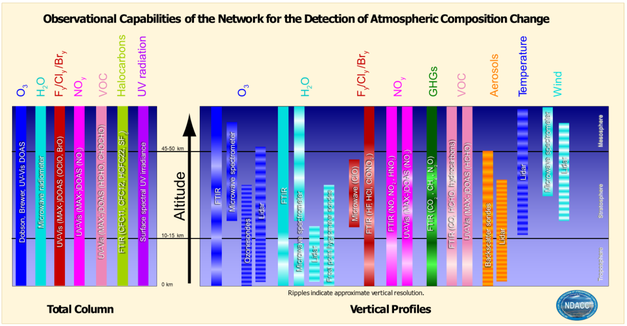
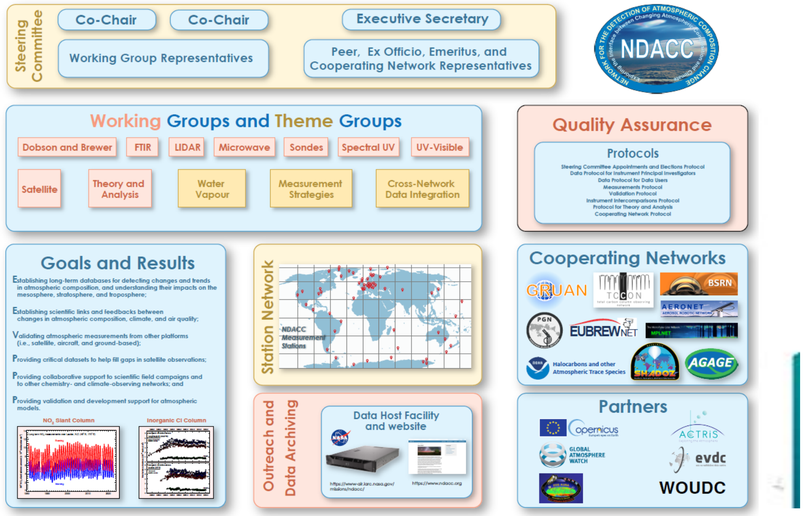
Outline

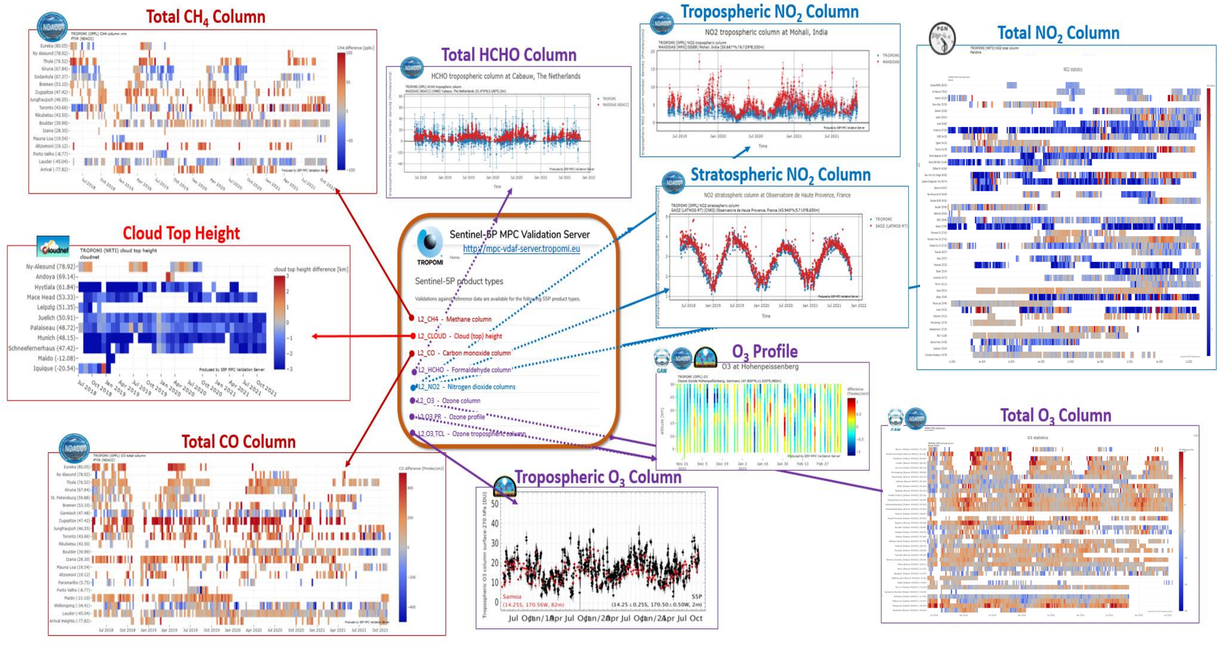
- What is NDACC?
  - NDACC = ~115 sites globally dedicated to ground-based measurements of atmospheric constituents related to climate change. Began in 1991 => 30+ years of records.
  - NDACC contributes to a "network of networks" with cooperating networks
- NDACC committed to being a "model for metrology"
  - FAIR (Findable, Accessible, Interoperable, Reproducible) data access
  - All NDACC instruments & affiliated networks committed to "best practices" in quality assurance (QA), Fiducial Ref Measurements



NDACC Organization – Working Groups, Cooperating Networks, QA, Data System

- **NDACC Co-Chairs:** M. De Mazière (BIRA) & I. Petropavlovskikh (NOAA)
- **Instrument Working Groups** develop their own calibrations, instrument tests, data processing-quality protocols, intercomparisons
- **NDACC Impacts:** e.g. satellite validation (see TROPOMI example below)





https://mpc-vdaf-server.tropomi.eu

NDACC Status (ndacc.org)

- ~115 stations, ~105 active
- 178 instruments
- Fiducial Reference Measurements (FRM) – validate satellites
- Rapid data delivery (option)
- Observational capabilities (see chart in the upper corner)

Summary

- NDACC celebrates 30+ years of highest-quality measurements contributing to global observing systems
- NDACC's emphasis on metrology has made it a leader in Cal/Val and FRM for past, present and future satellites
- NDACC's metrological success for climate monitoring depends on sustained international commitments for station operations, reference standards, intercomparison and archiving facilities

8 instrument Working Groups + standard operation protocols + common processing algorithms. Interdisciplinary theme groups

Detection = Calibrated and quality assured data + validation +

Atmospheric Composition – 30+ short- and long-lived chemicals + aerosols + wind + temperature + UV radiation

Change = Long-term NDACC datasets + cooperating networks + attribution with models (i.e. WMO/UNEP Ozone Assessment 2022, SPARC LOTUS, OCTAV-UTLS)

NDACC recognized as provider of highest-quality reference (FRM) data

Open data archive https://www-air.larc.nasa.gov/missions/ndacc/sc_space/

https://www.ndacc.org